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## **“Made in Vietnam” Lean Management Model for Sustainable Development of Vietnamese Enterprises**

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### **Abstract**

In recent years, increasing competitiveness and global recession have caused a lot of difficulties and troubles in economic development in Vietnam. A number of Vietnamese enterprises doing business ineffectively have constantly increased. The fact and practices have presented the limitation and bottleneck in mindset and approaches of business management. Among many viewpoints and philosophies of effective business management, lean management has been applied successfully in many enterprises worldwide. However, successful lessons from developed countries helped us know that we cannot apply any approaches of business management mechanically. Each nation or each enterprise based on their situation must find out management approaches suitable for them and apply them flexibly. This paper analyzes the current knowledge and practical application of lean management in Vietnamese enterprises through works of research group on lean management in the VNU University of Economics and Business. Based on the research findings, the group develops a “Made in Vietnam” lean management philosophy with the focus on core concept “Tam The” and an application “Made in Vietnam” lean management model being suitable for sustainable development of Vietnamese enterprises.

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Keywords: Lean Management; Tam The; 5S; Kaizen; Visualization Management

### **1. Introduction**

Lean management is one of the most advanced management which focus on creating customer's satisfaction and creating values through waste reduction [1], [2]. A critical point in the lean thinking is the focus on value. Often however, value creation is seen as equal to cost reduction [3].

The effectiveness and efficiency of lean application is proven by many successful cases worldwide such as Toyota, Nissan, GM, Seven Eleven and etc [4]. The core principles underlying lean manufacturing, are not confined to manufacturing processes either but have been shown to be applicable in many other disciplines too [5]. One of the cornerstones of Toyota's lean success was their ability to produce high quality cars at the end of the production line with little or no need for rework. This was achieved by the early detection of defects and the immediate focus on eliminating the cause of the defect so that it would never

happen again. This basic principle is of course transferable to many other domains/situations and is applicable outside the production, as well [6]. Implementing lean management could help enterprises to reduce operating time by 50% and cost by 80%, to save production space by 30% and to enhance the productivity by at least 30% [7], [8]

With the effort of research and consulting groups, lean management was initially applied in Vietnam since the last ten years of 20<sup>th</sup> century. In addition, with the penetration of FDI companies, especially with Japanese ones, lean management mindset and approach was welcomed with deep interests by Vietnamese researchers and managers. Until now, many specific concepts and tools of lean management such as 5S, Kaizen, visualization management, TQM have been propagated and known by many Vietnamese companies, even SMEs companies.

However, a number of researches on lean management have been rather limited. Research papers in Vietnam until now have directed to practical application of lean in garment and textiles, automobile, mechanics, health care, banking, and informatics [4], [9–11]. The necessity of how to apply lean management to business activities flexibly and successfully in Vietnamese culture and conditions has not been addressed comprehensively. The bottlenecks in applying lean management have explained why lean management has been presented in Vietnam for more than 15 years, but a number of Vietnamese enterprises applying lean management successfully have been limited. Most of Vietnamese companies have been squirming to find out the answer for applying or denying lean management approach. Therefore, developing an application model suitable for Vietnamese enterprises is very necessary.

## 2. Struggle for finding new management philosophy and model of lean application for Vietnamese enterprises

### 2.1. Seeking an appropriate research model and method for studying lean management in Vietnam

Research group on lean management of Vietnam National University (Hanoi) have carried out researches, written related books/documents, and organized annual conferences of lean management with different topics. We have objectives of forming “Made in Vietnam” lean management philosophy in Vietnam situation, developing lean management application model, and guiding enterprises to implement them successfully.

The research model and processes in order to implement the objectives are presented in the Figure 1.

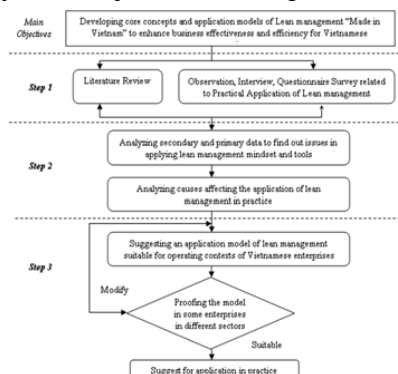


Fig.1. Research model of developing application model of lean management in Vietnam

We firstly collect database related to applying lean management in Vietnam. The secondary data are collected through analyzing literature review related to lean management. Moreover, we also gather primary data by conducting in-depth interviews, observations and questionnaire surveys to realize the knowledge and practices of applying lean management in Vietnam. From all the data collected, the research group analyzes them following scientific thinking and problem-solving science to identify the issues in applying lean management in Vietnamese

companies. We use some software tools to analyze the data such as SPSS, AMOS, Smart-PLS, and Crystall Ball. Based on the analysis results, the research group suggests an application model of lean management for Vietnamese enterprises. Next, we select some SMEs Vietnamese companies to introduce the model, guide for application to find out constraints of the model in different contexts, and suggest the optimized model for the companies.

### 2.2. Some results of practical situation of lean management in Vietnamese enterprises

In 2013, under the support of The Japan External Trade Organization (JETRO), we conducted a survey with sampling frame of 150 enterprises selected by JETRO from the list of excellent SMEs in northern and central Vietnam. The questionnaire is designed including 75 multiple choice with 5 selections to recognize the knowledge and application situation of lean management in the enterprises. Additionally, more 55 questions are designed following Likert scale to analyze factors influencing the effectiveness and usefulness of applying lean management. The research group issued 150 questionnaires and collected 54 respondents. The company respondents are mainly from manufacturing industry in industrial centers in northern Hanoi such as Bac Ninh, Thai Nguyen, Hung Yen, Hai Duong, and Vinh Phuc. The respondents are mostly middle and senior managers. Specifically, 52% of the respondents are directors and deputy directors; 18.5% are workshop managers, department chief and vice chief; staff belong to Lean/5S or Kaizen team occupy 4%; the rests are employees in these companies

Among 54 enterprises, nearly 85% of the respondents have been applying 5S, 44% of them using Kaizen, and 30% applying visualization management. The results presented that 5S, Kaizen, and visualization management are most popularly applied in Vietnam, especially for 5S. In Japan, 5S is regarded as the foundation for continuous improvement and application of other lean tools such as Kaizen, Visualization Management, Standardization, TPM, TQM,...Therefore, the results shows that Vietnamese enterprises are learning the way that Japanese companies do to apply lean management.

Most of the enterprises have applied tools of lean management with the duration from 1 to 7 years. Figure 2 shows us the number of years that company respondents have applied lean management. Many companies are very patient in learning and applying lean management thinking and tools.

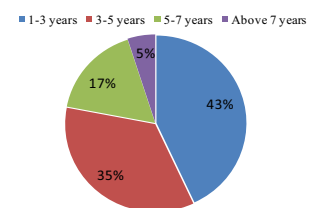


Fig. 2. Number of years applying lean management in company respondents

## 5S understanding and implementation in Vietnam

We evaluated the actual situation of 5S implementation at Vietnamese enterprises following six main contents including degree of understanding 5S (concept, nature, and methods to

implement 5S); development of implementation standard; control criteria; implementation frequency; degree of 5S training; control activities and periodical evaluation. In general, the results showed that the proportion of enterprises comprehend concept, nature, and methods to implement 5S is rather high, especially for the first three Ss (Sort, Set in Order, and Shine), but quite lower at the final two Ss (Standardize and Sustain). Otherwise, the rate of employees understanding the meaning of the 5S approach has still been low. Therefore, most of the company respondents have just only applied and implemented, but not retained 5S for long term, which reduced the effectiveness of applying 5S and made the enterprises afraid of continuous improvement and conducting other lean tools. The majority of company respondents said that 5S training is very necessary and should be conducted frequently. However, the enterprises have not invested enough time and money for internal and external 5S training to advance the knowledge and understanding of employees and managers. Almost of company respondents have not specific and periodical plan for conducting 5S. Approximately 28% of company respondents have built general control criteria for 3S implementation and regulated the application by specific decisions. Related to evaluating 5S implementation, nearly 11% of company respondents have never conducted 5S assessment; 37% of them evaluated yearly but without specific schedule; 28% of them assessed monthly, and 24% have not had any assessment plan.

For planning and developing standards for 5S implementation, nearly 56% of company respondents have conducted to apply in practice, 22% of them have understood the significance of 5S implementation standardization but they cannot implement due to the shortage of finance and personnel resources. About 48% of the company respondents have standardization for 5S implementation but they have not regulated and visualized specifically at work. The table 1 shows the situation of planning and standardizing 5S implementation.

Table 1: Situation of planning and standardizing 5S implementation

Content	S1-Sort	S2-Set in Order	S3-Shine	S4-Standardize
% of enterprises don't require standard	0%	0%	0%	0%
% of enterprises require standard but cannot implement	30%	22%	11%	31%
% of enterprises developed standards but not specific	48%	59%	57%	41%
% of enterprises developed specific standards	22%	19%	31%	28%

### Kaizen understanding and implementation

We evaluated Kaizen understanding and implementation through some main criteria including a number of employees introduced Kaizen philosophy and tools; implementation level (personal Kaizen activities, group Kaizen activities); PDCA /SDCA cycle implementation, and seven basic tools of quality. Although Kaizen is applied in Vietnam rather popularly after 5S, the understanding of Kaizen significance, its tools, and the way to conduct it has been rather limited. Some company respondents applied and implemented Kaizen in their factory and office but they have not achieved the expected effectiveness due to the shortage of standardized processes and training documents. Otherwise, media activities for applying and implementing have not been also effective to attract the participation of employees and different level of managers. Figure 3 shows the rate of employees (%) was

introduced Kaizen philosophy and their understanding degree of its significance at company respondents.

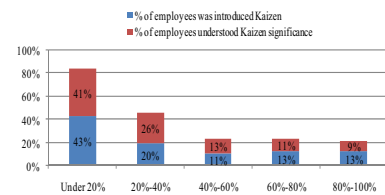


Fig. 3. The rate of employees (%) was introduced Kaizen philosophy and understood its significance

### Visualization management understanding and implementation

We analyzed and evaluated understanding and implementation of visualization management through five main criteria including visualization of business strategy, visualization of production status, visualization of problems, visualization of working approach, and visualization of customer satisfaction. Activities of visualizing business strategy have just presented generally at some specific places such as company main gates and sitting room. Visualization of production status is presented mostly through production plan, production real schedule and progress, and production effectiveness. Company respondents have still used traditional methods to communicate and spread information through functional departments such as documents, email, weekly/daily meeting. They have not applied tools of visualization to demonstrate and exchange information with employees and managers. Almost company respondents have known about the important of issues visualization, they have not visualized their problems in business and production. The same situation also happens with visualization of customer comments. Figure 4 shows the situation of visualizing customer comments.

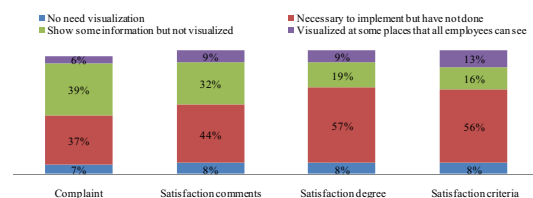


Fig. 4: Situation of visualizing customer comments, complaints, and satisfaction

### Conducting case study and in-depth interviews

We have also conducted more than 15 case studies through factory tour and in-depth interview since 2013. We have kept in touch with these companies for a long time through factory/company tour, discussion and share of lean model and experiences. For the first visits and discussions, we conducted direct observation and personal interview with different company managers and some employees to understand comprehensively the understanding and application of lean management. Moreover, the issues and bottlenecks in the process of applying lean management have been also identified to help the research group develop an application model and core concepts suitable for Vietnamese enterprises. For the next visits and discussions, we tried to analyze the shortcomings in current application of lean management and suggest an application model for interviewing companies. We

are always beside the companies to check and watch for their progresses in applying lean management. Some consultancy packages and lean training course are also provided for them to enhance the possibility of applying lean tools and the effectiveness. When we introduce our core concept and new application model of lean management, we frequently must adapt and adjust somewhat to make it become more suitable with the companies' context. The core concept of our lean model introduced in the next part has not been also absorbed easily because of traditionally unchanged thinking.

### Organizing annual conference of lean management

We organized two annual national conferences of lean management since 2014 because we want to make the conference become a joint working place for researchers and practitioners to share models, experiences, and issues of applying lean management in Vietnam. The results of our conferences were published in two proceedings of Vietnam National University (Hanoi). The further and detail information about the results of questionnaire survey and case study can be read in our 3 books and our research papers published [10–13]. Some pictures of working at companies and in conferences are shown in Figure 5.



Fig. 5: Some pictures of working at companies and in conferences of the research group

### 2.3. Some evaluation of applying lean management in Vietnam

#### Some constraints

By analyzing secondary and primary data through different researches of the group, we have found out some constraints in the process of applying lean management in Vietnam. *Firstly*, the most serious problem that many companies have faced is that they cannot sustain their “Tam The” (Mindset) of continuous improvement to get the effectiveness from applying lean management for a long time. “Tam The” is the core concept we investigated and discovered when we have done researches on Lean management in Vietnam since 2009. *Secondly*, many companies have been shortage of suitable documents of lean management to make the foundation/frame for building standards of how to implement 5S, Kaizen, visualization management and etc. *Thirdly*, almost of the companies have not created evaluation criteria of applying effectively lean management in general and lean tools (5S,

Kaizen, PDCA, QCC,...) in particularly. Therefore, they cannot measure the effectiveness and have not had improvement plan for applying lean management successfully. *Finally*, leaders and managers of companies have understood and comprehended the significance and benefits of applying lean management. However, they have not built and developed policy and motivation mechanism to deliver lean approaches such as 5S and Kaizen to become corporate culture. Moreover, the most important thing is that they have not maintained the application and implementation of lean frequently in their companies for sustainable development.

#### Some causes

After collecting database from different sources by diversified methods, we identified the root causes for the constraints and ineffectiveness of applying lean management in Vietnam. We analyzed the root causes following 5Whys framework. Figure 6 explores some root causes.



Fig.6: Root causes for applying lean management ineffectively in Vietnam

### 3. Developing “Made in Vietnam” lean management philosophy

Based on analyzing data collected from different sources and identifying constraints as well as the root causes for ineffective application of lean management in Vietnamese companies, the research group developed “MADE IN VIETNAM” lean management philosophy. “MADE IN VIETNAM” lean management philosophy is the philosophy of gaining profit or creating added values for the company by utilizing the employees' intellectual to continuously improve the business process to minimize the costs [10]. We presented the equations as below to explain for the concept of “MADE IN VIETNAM” lean management philosophy.

$$\begin{aligned} \text{Profit} &= \text{Revenue} - \text{Costs (1)} \\ \text{Costs} &= \text{Actual Costs} + \text{Wastes (2)} \\ \text{Wastes} &= \text{Tangible wastes} + \text{Intangible wastes (3)} \end{aligned}$$

The actual costs include expenses that ensure activities for implementing and maintaining business activities. The tangible wastes are popular and easy to identify in doing business such as unnecessary inventory, over-

production, waiting time, unnecessary transportation and movement, defects, etc. In practice, for visible wastes almost companies have been trying their efforts to optimize and save the costs. However, intangible wastes cannot be seen or touched such as wastes in

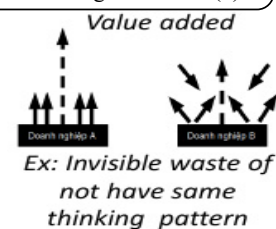


Fig.7



thinking pattern (shortage of development thinking for business, afraid of thinking changes, conservative and traditional thinking), wastes in working approaches (methods and processes to operate business), wastes in missing developing opportunities (growth chances and business opportunities). The intangible wastes have been regarded as more than the tangible wastes. Figure 7 illustrates the influential level of intangible wastes for enterprises that have the similarity or dissimilarity in developing thinking.

In order to increase profits, a company should at the same time: (1) keep the revenue constantly or accelerate the company's income gradually, (2) reduce and eliminate the wastes (visible waste and invisible waste) as much as possible.

By keeping the revenue constantly or minimizing the wastes, enterprises will create profit (financial added value with A ones) to create and maintain motivation for supporting company's development in lean management application. The A value can be allocated following the below formula to motivate all related stakeholder in doing business:

$$A = A_1 + A_2 + A_3 + A_4 + \dots + A_n \quad (4)$$

$A_1, A_2, \dots, A_n$  are components of the A value (benefits from applying lean management) that are reallocated into the system in the enterprise and society to retain and motivate the application of lean management. For example, in the case  $n = 4$ , we have  $A_1, A_2, A_3, A_4$  in the formula (4) including: A (the total benefit from lean implementation),  $A_1$  (benefits allocated directly to the employees giving the suggestion of minimizing wastes),  $A_2$  (benefits given to members in companies thanks to lean application such as increasing meal ration and holiday welfare),  $A_3$  (benefits brought to society/customers such as increasing product quality, reducing price and implementing CSR activities),  $A_4$  (profits retained in enterprises for continuous investment and development).

In other words, when applying lean management to minimize wastes as much as possible, all related stakeholders are benefited. The nature of this formula has also shown that enterprises are not necessary to add more investments for activities of lean management when their systems are designed and established appropriately. Benefits obtained from waste reduction are the amount spent for sponsoring to continuously maintain and develop other activities of lean management. Therefore, by exploring employees' intellectual and motivating them to devote in reducing and minimizing wastes, lean management will be an effective solution to enhance enterprises' efficiency and ensure sustainable development of the company.

#### 4. Developing "Made in Vietnam" Lean Management Model and the role of Tam The for successful implementation of the model

After developing "Made in Vietnam" lean management philosophy and key concept of successful lean implementation in Vietnam, the research group developed an application model of lean management "Made in Vietnam" including two main parts (Figure 8). An

enterprise/organization that wants to apply lean management successfully should combine both two parts.

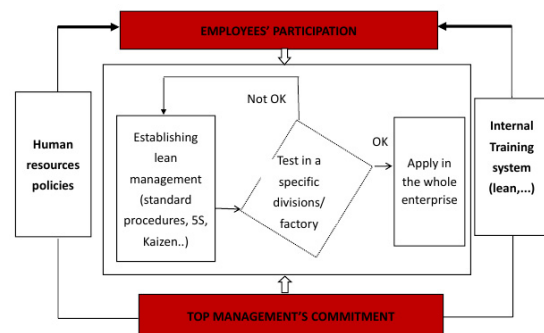


Fig. 8. "MADE IN VIETNAM" model for lean application in Vietnam

Firstly, in order to apply and implement lean management in an enterprise/organization, we recommend that the enterprise should carry out through 3 stages: (1) Developing implementation processes and procedures as well as criteria set for controlling and evaluating; (2) Implementing pilot lean application at a department/function; (3) Applying lean management in the overall enterprise. In addition, we also suggest that the enterprise should pay attention to some important conditions including: (1) top management commitment; (2) human resource policies; (3) training policies; (4) employee's commitment and participation.

When implementing lean management, an enterprise/organization - especially for SMEs - should practice basic and less demanding financial requirement tools such as 5S, Kaizen, and visual management. As recognized by the recent surveys, in-depth interviews, case study investigations, the major factor that prevents Vietnamese enterprises from maintaining lean implementation's effectiveness is the human mindset and workers' behavior. Therefore, the better implementation model is proposed with the focus laid on the central factor of "Tam The" [4] that prioritizes the preparation of the mind-set for all people in the organization before starting lean implementation.

Based on the development of "Made in Vietnam" lean management philosophy, the research group also proposed the new management concept - "Tam The" in 2014. "Tam The" is regarded as the heart of "Made in Vietnam" lean management philosophy. "Tam The" is the central and key factor for successful lean implementation (Figure 9). "Tam The" has been recognized as management concept written in Vietnamese publishing on International Journal of Simulation and Modelling (ISI; Impact factor 2.08). (<http://www.ijssimm.com/>). Tam The - a management concept - is defined by [4], [10] following the formula:

$$\text{Tam The} = \text{Thấu 1} + \text{Thấu 2} + \text{Ý (Vietnamese concept)}$$

$$\text{Tam The} = \text{Deep Understanding 1} + \text{Deep Understanding 2} + \text{Consciousness}$$

"Tam The" includes 2 Understandings and 1 Consciousness. Deep Understanding 1 is to comprehend that a work (job/study) that a person implements benefits himself/herself. Deep Understanding 2 is to comprehend that

by doing the work seriously (job/study) can he/she improve their thinking capacity (when studying) and working possibilities (when implementing a job), therefore bring benefits for himself/herself. Consciousness is to understand that people should have good behavior, attitude and morality with the work to reflect and implement 2 understandings.

“Tam The” – a Vietnamese word refers to the deep understanding of employees and managers about the benefits of their tasks and lean management for themselves. Therefore, “Tam The” has played an important role in establishing thinking foundation for how to apply successfully lean management in Vietnam. It means that everyone should have 2 understandings and 1 consciousness (by nature or through training). For lean management, we should understand that applying and developing thinking and tools of lean management will help to enhance personal and enterprise capabilities and people should have good consciousness, attitude, and morality to achieve two understandings. In an enterprise or an organization, lean management can be implemented based on three basic factors: (1) human, (2) hard part, and (3) soft part. Hard part here can be understood as facilities, capital, etc..., while soft part includes thinking, mindset, philosophy, processes, and procedures to recognize and minimize wastes. The human factor that is a special ones and plays the determinant role affect the rest factors as well as the overall process of applying lean management. People are the ones who control the hard part and inspire the soft part, balance between them to make both of them suitable for the enterprise. When we mention the human factor, the main thing that we should be consider as the most important is “Tam The”. When the people in an enterprise/organization applying lean management have good “Tam The”, they will actively participate and contribute to the implementation progress of lean management, thus creating real benefits for enterprises in a sustainable way.

Thus, for the revised model of lean application in Vietnamese enterprise, the core factor of the proposed model should be “Tam The”. Figure 9 illustrates the revision of our proposed model with the central role of “Tam The” to apply lean management successfully in Vietnam.

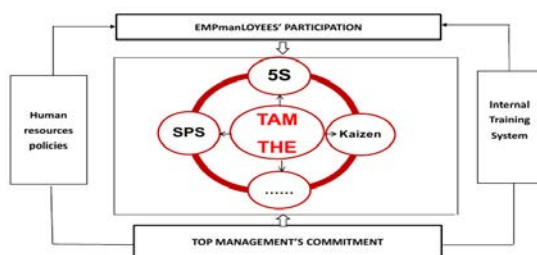


Figure 9: The proposed model with the role of TAM THE in MADE IN VIETNAM lean management model

Model testing and results for application can be read and referred to our paper approved by International Journal of Simulation and Modeling [4].

## 5. Conclusion

The paper contributes to expanding literature review related to lean management concepts and proposing a better model of lean management in the context of developing countries, especially in Vietnam. The proposed model with “Tam The” recognizes the important role of human resources development in lean implementation stages. It means that training employees and building up “Tam The” for them is critical tasks of managers during the process of lean implementation in Vietnam. For more discussions and researches, the research group will develop and implement more case studies and questionnaire surveys to demonstrate the effectiveness of the newly proposed model with both quantitative and qualitative methods. By recognizing “Tam The” as the central factor of the proposed model, enterprises can know how to maintain lean mindset and enhance the effectiveness of lean implementation for sustainable development

## Acknowledgements

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